

Bats & White-Nose Syndrome Status in Michigan



John DePue, Wildlife Biologist
NRC meeting October 12, 2023



Bats of Michigan

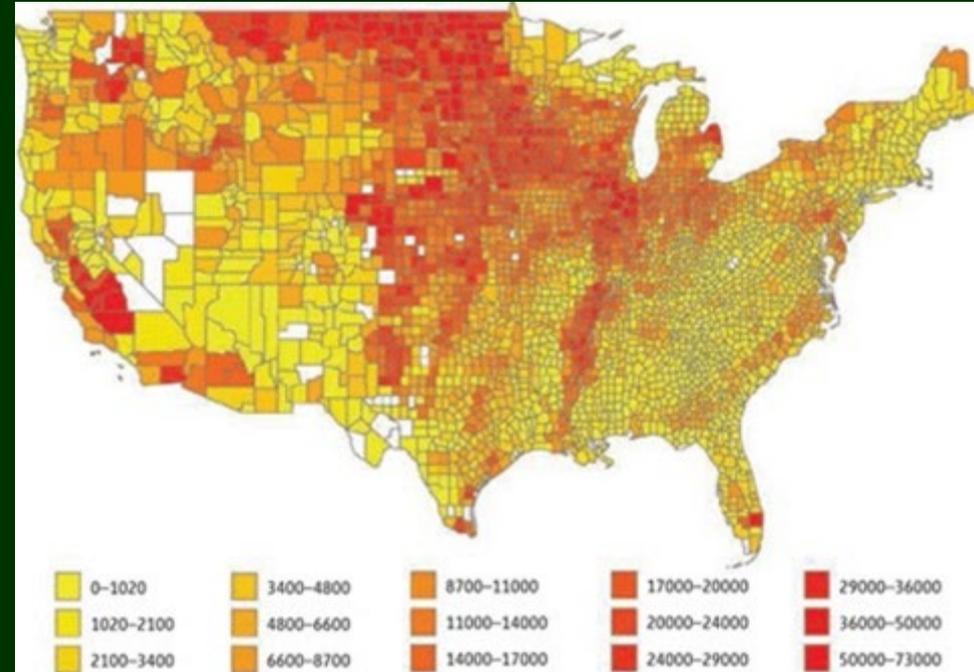
- Nine species, all insectivores
 - Primary nocturnal insect predator
- Two federally endangered bat species:
 - Indiana Bat
 - Northern long-eared bat
- All have legal protection in MI
- Long lived, BBB 30+ years in wild



Why Should We Care About Bats?

- Economic Importance

- Pest control benefits \$3.7 – \$53 billion / year nationally
- **Michigan agriculture \$528 million to \$1.2 billion annually (2011)**
 - ~\$74 per farmed acre
- Gypsy moth, tent caterpillars, cutworms (codling moths), pecan nut casebearer, fruit worms, forest cone worms, hickory shuckworm, corn ear worm moth

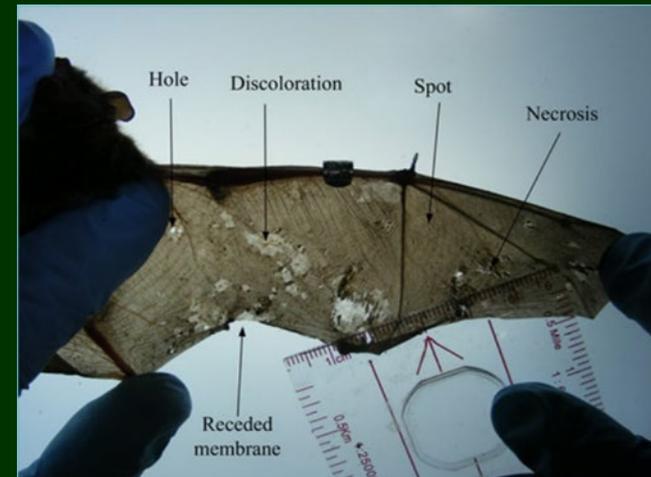


J G Boyles et al. Science 2011;332:41-42



What is WNS

- Disease caused by a fungus
- *Pseudogymnoascus destructans* (*Pd*)
- Causes energy depletion
- Impacts whole suite of cave bat species; little brown, northern long-eared, tri-colored, and big brown bats



Impacts of WNS

- 80-100% mortality rate in hibernacula
- Cause of northern long-eared bat (NLEB), little brown bat and tri-colored bat declines



WNS in Michigan

- Michigan in 10th year of infection
- All hibernacula have presence of WNS



WNS Impacts in Michigan

- Survey data indicate 89% decline of the sites surveyed post-WNS infection
- Colder hibernacula continue to have higher survival



MI DNR Bat Conservation Actions

- Statewide bat monitoring
 - Disease
 - Population
- Protect critical hibernacula
- WNS treatment trials
- Outreach/ education
- Bat Habitat Conservation Plan (HCP)



Hibernaculum Climate Manipulation

- Reduce internal temperatures to 36-38 degrees F



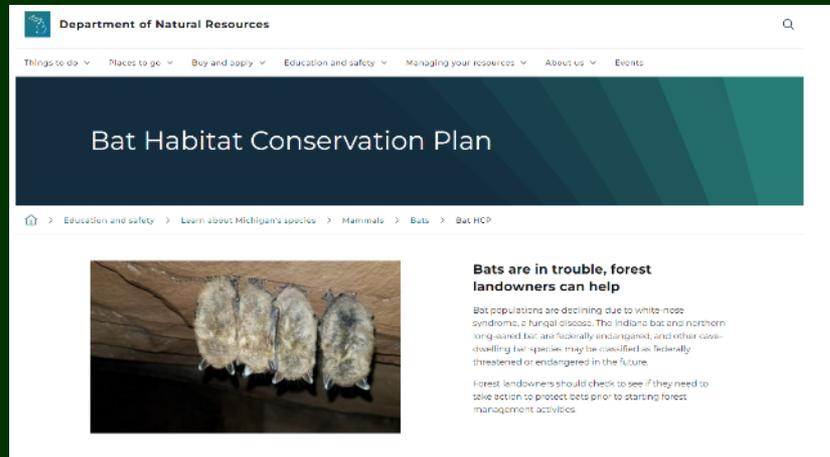
Lake States HCP

- MI, WI, MN
- Necessary to obtain incidental take permit
- Protection from litigation for forestry management practices while providing habitat conservation for federally listed species



Lake States HCP Status

- HCP approved in March 2023
- Implementing conservation measures in accordance with HCP
- Accepting applications from private landowners into the Landowner Enrollment Program



The screenshot shows the Michigan Department of Natural Resources website. The main heading is "Bat Habitat Conservation Plan". Below the heading is a navigation menu with items: "Education and safety", "Learn about Michigan's species", "Mammals", "Bats", and "Bat HCP". The main content area features a photograph of four bats hanging from a wooden beam. To the right of the photo is a text block with the heading "Bats are in trouble, forest landowners can help". The text below the heading states: "Bat populations are declining due to white-nose syndrome, a fungal disease. The Indiana bat and northern long-eared bat are federally endangered, and other cave-dwelling bat species may be classified as federally threatened or endangered in the future. Forest landowners should check to see if they need to take action to protect bats prior to starting forest management activities."



Thank You!

